ARMY COMMUNICATOR

The Signal impact on Mission success

Plus:

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Spc. Jordan Brown and Pvt. 1st Class Ryan Mobley set up a GATR Antenna System as part of their training to maintain proficiency on communication systems. Operation of Signal tech can make the difference between mission success or failure.
Photo provided by 19th Expedition Sustainment Command

Signal Regimental Team

Thank you for joining us for another edition of the Army Communicator!

This month, we say goodbye to our Regimental Chief Warrant Officer, CW5 Garth Hahn, as he transitions to his next duty assignment. CW5 Hahn has been instrumental in the operations of the Signal Regiment for the last several years and provided essential continuity during the change over from the prior command team to the current one. To say he will be missed is a gross understatement. Later in this issue, CW5 Hahn reflects on his time with the Signal School and his thoughts on the Signal Regiment. He also welcomes his replacement, CW5 Chris Westbrook, as our new Regimental Chief Warrant Officer. CW5 Westbrook brings with him a wealth of knowledge and experience, and we're excited to have him on our team.

A lot of exciting things are coming up over the next several months, including the return of TechNet Augusta and our recognition of this years Distinguished Members of the Regiment inductees. Factor in the gradual return to normal operations following over a year of COVID-related restrictions and it's shaping up to be an extremely busy summer. Hopefully, many of you will also be able to take some time off and enjoy the weather with friends and family. If you're planning on travelling this summer, please remember to make safety your first concern.

Thank you again for all of your hard work. Remember, we want to hear what you and your teams are doing. If you would like your organization featured in the Communicator, let us know.

Until next month, Pro Patria Vigilans!

COL John T. Batson
Signal School
Commandant

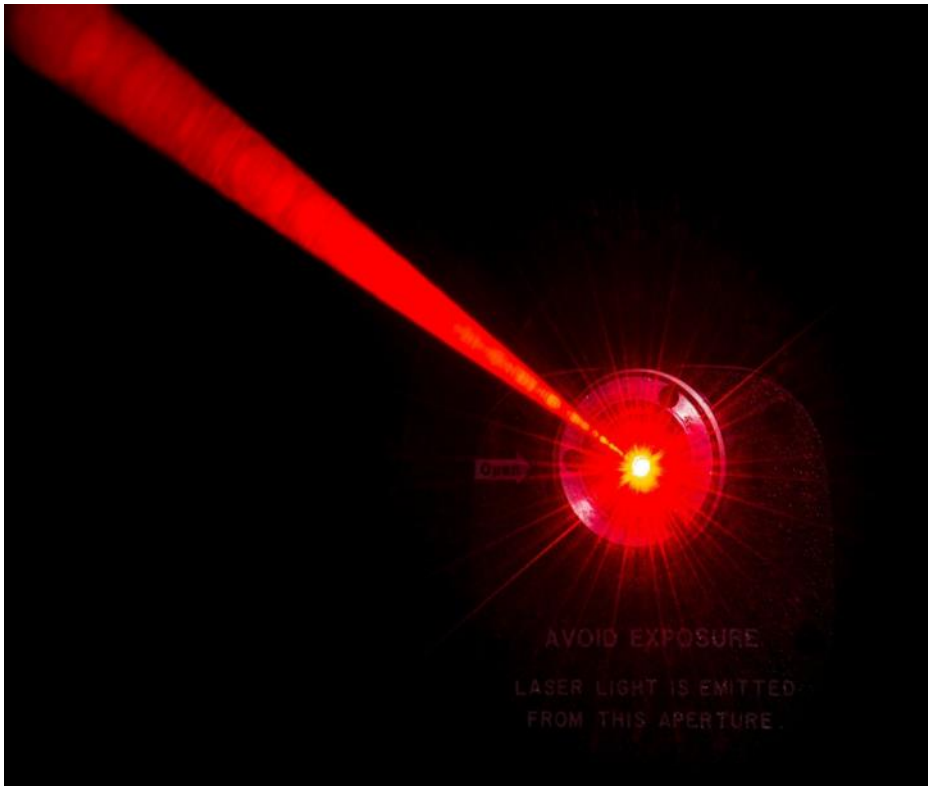CSM Darien D. Lawshea
Regimental CSM

CW5 Garth R. Hahn
Regimental CWO

Army-funded research paves way for improved lasers, communications

U.S. Army DEVCOM Army Research Laboratory Public Affairs

New photonics research paves the way for improved lasers, high-speed computing and optical communications for the Army.

Using light's speed and the way information can be layered in its various physical properties researchers increase the speed of communication while reducing wasted energy.
Shutterstock photo

Photonics has the potential to transform all manners of electronic devices by storing and transmitting information in the form of light, rather than electricity. Using light's speed and the way information can be layered in its various physical properties can increase the speed of communication while reducing wasted energy; however, light sources such as lasers need to be smaller, stronger and more stable to achieve that, researchers said.

"Single-mode, high power lasing is used in a wide range of applications that are important to the Army and help support the warfighter including optical communications, optical sensing and LIDAR ranging," said Dr. James Joseph, program manager, ARO, an element of the U.S. Army Combat Capabilities Development Command, known as DEVCOM, Army Research Laboratory. "The research results out of UPenn mark a significant step towards creating more efficient and fieldable laser sources."

The way information can be layered with this technology could also have important implications for photonic computers and communication systems.

Army-funded researchers designed and built two-dimensional arrays of closely packed micro-lasers that have the stability of a single micro-laser but can collectively achieve power density orders of magnitude higher, paving the way for improved lasers, high-speed computing and optical communications for the Army.

In order to preserve the information manipulated by a

photonic device, its lasers must be exceptionally stable and coherent. So-called single-mode lasers eliminate noisy variations within their beams and improve their coherence, but as a result, are dimmer and less powerful than lasers that contain multiple simultaneous modes.

Researchers from the University of Pennsylvania and Duke University, with Army funding, designed and built two-dimensional arrays of closely packed micro-lasers that have the stability of a single micro-laser but can collectively achieve power density orders of magnitude higher. They published a study in the peer-reviewed journal Science demonstrating the super-symmetric micro-laser array.

Robots and autonomous vehicles that use LiDAR for optical sensing and ranging, manufacturing and material processing techniques that use lasers, are some of many other potential applications of this research.

"One seemingly straightforward method to achieve a high-power, single-mode laser is to couple multiple identical single-mode lasers together to form a laser array," said Dr. Liang Feng, associate professor in the departments of Materials Science and Engineering and Electrical and Systems Engineering at University of Pennsylvania. "Intuitively, this laser array would have an enhanced emission power, but because of the nature of complexity associated with a coupled system, it will also have multiple super-modes. Unfortunately, the competition between modes makes the laser array less coherent."

Coupling two lasers produces two
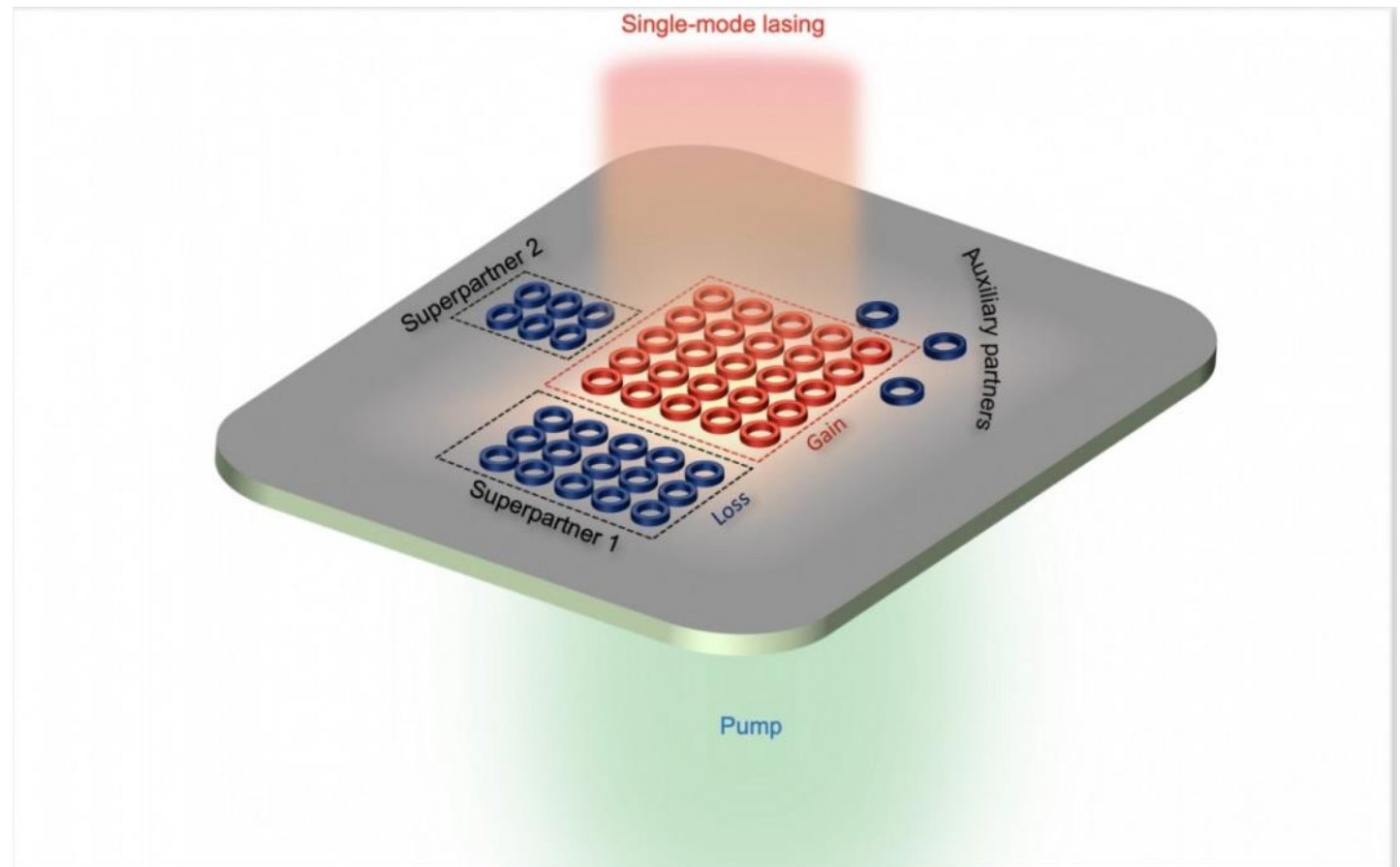
Army-funded researchers designed and built two-dimensional arrays of closely packed micro-lasers that have the stability of a single micro-laser but can collectively achieve power density orders of magnitude higher, paving the way for improved lasers, high-speed computing and optical communications for the Army. Photo courtesy University of Pennsylvania

super-modes, but that number increases quadratically as lasers are arrayed in the two-dimensional grids eyed for photonic sensing and LiDAR applications.

"Single mode operation is critical because the radiance and brightness of the laser array increase with number of lasers only if they are all phase-locked into a single super-mode," said Xingdu Qiao, doctoral candidate at University of Pennsylvania. "Inspired by the concept of supersymmetry from physics, we can achieve this kind of phase-locked single-mode lasing in a laser array by adding a dissipative super-partner."

In particle physics, super-symmetry is the theory that all elementary particles of the two main classes, bosons and fermions, have a yet undiscovered super-partner in the other class. The mathematical tools that predict the properties of each particle's hypothetical super-partner can also be applied to the properties of lasers.

Compared to elementary particles, fabricating a single micro-laser's super-partner is relatively simple. The complexity lies in adapting super-symmetry's mathematical transformations to produce an entire super-partner array that has the correct energy levels to cancel out all but the desired single mode of the original.

Prior to this research, super-partner laser arrays could only have been one-dimensional, with each of the laser elements aligned in a row. By solving the mathematical relationships that govern the directions in which the individual elements couple to one another, this new study demonstrates an array with five rows and five columns of micro-lasers.

"When the lossy super-symmetric partner array and the original laser array are coupled together, all the super-modes except for the fundamental mode are dissipated, resulting in single-mode lasing with 25 times the power and more than 100 times the power density of the original array," said Dr. Zihe Gao, a post-doctoral fellow in Feng's program, "We envision a much more dramatic power scaling by applying our generic scheme for a much larger array even in three dimensions. The engineering behind it is the same."

The study also shows that the technique is compatible with the team's earlier research on vortex lasers, which can precisely control orbital angular momentum, or how a laser beam spirals around its axis of travel. The ability to manipulate this property of light could enable photonic systems encoded at even higher densities than previously imagined.

"Bringing super-symmetry to two-dimensional laser arrays constitutes a powerful toolbox for potential large-scale integrated photonic systems," Feng said.

RNEC Bluegrass Fort Campbell Civilians and 101st Airborne Soldiers modernize the installations network infrastructure

Jimmie L. Binford, IV
Deputy Director, RNEC Bluegrass, 93d Signal Brigade, 7th Signal Command, NETCOM

United States Army Garrison (USAG) Fort Campbell is home to Soldiers, Army Civilians, and Family members who rely on the availability of modern networked communications systems to complete their daily tasks; such as scheduling and tracking of unit level training, monitoring of alarms, affecting commercial business through MWR, conducting educational courses, making phone calls, and ensuring the health, life, and safety of all the individuals living and working on the installation. Advances in Information Technology (IT) continue to move along at a blistering pace; keeping that in mind, network infrastructure supporting the IT services that Fort Campbell relies upon must be refreshed every few years to maintain communications availability, connectivity, not to mention the operational capability that leadership requires.

Earlier this year, the Regional Network Enterprise Center (RNEC) Bluegrass Fort Campbell and the 101st Airborne Division joint network implementation teams successfully completed a multi-million dollar network infrastructure modernization and life cycle replacement project across the installation. The network modernization joint network implementation teams consisted of 24 Army Civilians, 20 101st Airborne Division Soldiers, and one DOD Contractor.

Prior to any work beginning the install teams and supporting personnel needed to rapidly acquaint themselves with a brand new networking operating system language from a new network equipment vendor in order to properly configure and stage the network devices being used to modernize the installation network infrastructure. The work performed by the install teams required that each and every new network device was de-packaged,

James Mosley, a Department of the Army Civilian and ICANMOD 2.0 network device installer from the RNEC Bluegrass - Fort Campbell troubleshoots and delivers quality control to end user access switches installed in support of the Campbell Army Airfield at Fort Campbell, KY. Photo provided by Jimmie L. Binford, IV

Signal Soldiers from the 101st Airborne Division decommission legacy network devices and install modern network infrastructure devices while also conducting quality control and service validation in support of NIPRNet capabilities within a Fort Campbell, KY installation facility.
Photo provided by Jimmie L. Binford, IV

accounted for in the Army's property control system, tagged for a specific location aboard the installation, safely transported, properly configured, correctly installed, and operationally tested; a quality assurance inspection was also completed on the device after installation to verify network connectivity and adherence to the PEO/EIS I3MP network equipment installation standards.

The consolidated team of Soldiers is known as Borrowed Military Manpower (BMM); a personnel resource that is offered by FORSCOM to outside agencies for use on special projects. Spc. Emanuel Davis and Spc. Aleksey V. Pichinevkiy were two of 20 highly motivated 101st Airborne Division Signal Soldiers that bolstered the RNEC ICANMOD-C 2.0 implementation teams with their subject matter expertise.

My most memorable moment during this project was witnessing a random group of Signal Soldiers becoming a team to get the job done, the opportunity to interact with the RNEC personnel whose jobs relate to my MOS also ranked high on my list," Davis said.

Concurring with his team-mate, Pichinevskiy expressed his surprise at the total number of network devices installed throughout the entirety the project.

"I had the opportunity to visit many new locations on Fort Campbell that I never even knew existed," he added.

The 101st Airborne Soldiers were able to bring their work ethic, technical acumen, and Esprit de Corps to bear by expeditiously and properly installing over 1,350 network devices throughout the entirety of the six-week long project lifecycle. The Soldiers and Civilians also adhered to social distancing, frequent hand washing, and mask wearing standards to mitigate risks associated with the enduring COVID-19 global pandemic.

"FORSCOM has been the primary force provider to the network infrastructure modernization efforts aboard CONUS installations," Cpt.Santiago Peralta, onsite BMM Officer in Charge (OIC), said. "Our committed team of 20 Signal Soldiers completed a monumental task and they should be proud of their accomplishments! Also, the Soldiers had a limited window of 35 days in which they could affect the network modernization initiative; they accomplished the stated goals within those time constraints effectively and efficiently!"

Sgt. 1st Class Joshua R. Yascavage, the onsite Staff Non-Commissioned Officer in Charge said the Soldiers working on this project were some of the most dedicated Service members he ever worked with.

"They took a deep level of pride in their work and constantly sought to challenge themselves by taking on more complex tasks as the project matured," he said. "All parent Commands should be proud of their Soldiers achievements and their willingness to go above and beyond for the entirety of the installation."

The many accomplishments of the Soldiers and Army Civilians throughout the multi-million dollar network infrastructure modernization and life cycle replacement project culminated in the configuration, installation, and commissioning of over 1,350 network devices; replacing aging and legacy network hardware components across the entirety of the installation. This successful network infrastructure modernization effort directly supported the command and control capabilities of the Senior Mission Commander, Garrison Commander, as well as many other mission partners across the entirety of USAG Fort Campbell. This combined effort is the result of the Installation Campus Area Network Modernization -CONUS 2.0 initiative spearheaded out of the Installation Information Infrastructure Modernization Program within the Army's Program Executive Office - Enterprise Information Systems.

The RNEC Bluegrass - Fort Campbell and Signal Soldiers from the 101st Airborne Division after receiving, labeling, configuring, and installing 1328 end user access switches.
Photo provided by Jimmie L. Binford, IV

The impact a Signal Soldier has on mission success

Sgt. Maj. Richard Thomas
19th Expeditionary Sustainment Command

Through my many years of service to the United States Army in both the Infantry and now the Signal Corps, I have routinely come in contact with Signal Soldiers who fail to grasp their importance to the success of the overall mission that they are supporting. In many cases, it is understandable. Many Soldiers are new to the Army and have yet to learn to see the tremendous impact their communication duties have on operations. However, plenty of junior and more seasoned leaders also fail to realize the effect they and their sections could have on the Multi-Domain Operations (MDO) against a possible near-peer or peer threat.

For the last decade-plus, the United States Army has been primarily focused on combating terrorism worldwide. During that time, the United States' adversaries, such as China and Russia, have increased their military technology and capabilities to rival the United States Military. As the United States Army shifts its focus back to large-scale combat operations against rival peer and near-pear threats, Signal Soldiers and leaders should understand their importance and value to the MDO fight.

According to TRADOC Pamphlet 525-3-1, "Multi-Domain Operations is an operational-level military concept designed to achieve U.S. strategic objectives articulated in the National Defense Strategy, specifically deterring and defeating China and Russia in competition and conflict." This strategic competition is already taking place in the Cyber and Space domains. If International

19th ESC G6 Soldiers training on IOM the COVN-K system
Photo provided by Sgt. Maj. Richard Thomas

Pvt. 1st Class Ryan Mobley sets up the NIPR switch for Tunneling Kits. Photo provided by Sgt. Maj. Richard Thomas

Relations (IR) deteriorate to a level that constitutes war, the U.S. Military will move into the other three domains: Land, Sea, and Air. There will be a Signal Soldier to ensure everything is connected at the point of friction for the tactical, operational, and strategic fight in all five domains.

Signal Soldiers will be present at the strategic level whole of government efforts with units like the White House Communication Agency (WHCA). According to the Defense Information Systems, Agency, "the White House Communications Agency is one-of-a-kind joint service organization dedicated to providing premier information service and communications support to the president." The United States President is at the top of the whole of government efforts to ensure international relations remain at a level below the threshold of war. The Signal Soldiers of WHCA with their joint forces counterparts provide that the vital and critical link down to operational commanders through the proper chain of commands.

The operational level of command links strategic goals down to the tactical aspect of gains on the ground during a conflict. Again, there will be a Signal Soldier present to ensure communications are reliable and seamless. One example of communications that link the strategic to the tactical would be the Signal Brigades. The 1st Theather Tactical Signal Brigade. Although the word tactical in its name, its mission is to link unis in the Korean Theater of Operations (KTO) to the direction and orders given by the Unified Nations Command (UNC), the Combined

Forces Command (CFC), the United States Forces Korea (USFK, and the 8th Army's Commanders.

The tactical level, Signal Soldiers serve in every unit across the United States Army. Every unit within the Army has some form or fashion of an S6 section that supports the commander's mission with communications. An Infantry Battalion will have a mix of FM communication assets such as the Single Channel Ground and Airborne Radio System (SINCGARS), a version of the Harris tactical satellite communications (SATCOM), and a Joint Capabilities Release (JCR) depending on their Table of Organization and Equipment (TO&E). These systems form the that battalions lower Tactical Internet network, commonly referred to as Lower TI.

That same Infantry battalion may also have a Command Post Node (CPN), which will provide the battalion with Upper Tactical Internet or Upper TI. The S6 section provides the commander with that vital internet connection to the higher headquarters. The Signal Soldier also provides the commanders with Video Teleconferencing (VTC) capabilities through their CPN network. The information shared through both Upper TI and Lower TI networks is essential to mission success for that battalion performing duties that support the Operational mission for the overall strategic goals set by leaders.

By providing these networks through various communication systems, Signal Soldiers allow maneuver units to seize objects through combat actions. They are supporting logistical companies in moving equipment to resupply all units on the battlefield. Signal Soldiers make it possible for Military Police battalions to coordinate movement and provide mobility support operations on the battlefield. Medical companies rely on Signal Soldiers to ensure communications are working to support the medical evacuation operations. Signal Soldiers are at every point of need for every unit in the United States Army, ensuring the commanders' intent is delivered and heard.

Signal Soldiers need to realize and understand their importance and value to whatever mission they are supporting. Through all three levels of warfare and all five domains, Signal Soldiers are present and performing their duties with the utmost professionalism. Signal Soldiers, sections, and units are

Spc. Gus Blocksberg and Spc. Jacob Grant perform radio checks with the AN/PRC 119F ASIP radios to other stations during training. Photo provided by Sgt. Maj. Richard Thomas

there, proving that critical link for other units to coordinate putting rounds on target, move necessary supplies across lines, ensuring medical evacuation networks are up, and many more other vital operations that keep our Army poised for mission success.

WHS Cyber warriors take 1st, 2nd place in annual cyber challenge

Candy Knight
2d Theater Signal Brigade Public Affairs

The 2d Theater Signal Brigade Commander, Col. Michael R. Kaloostian, presented certificates of excellence and congratulations April 15 to Air Force Association United States CyberPatriot program participants at Wiesbaden High School for placing first and second during the CyberPatriot's National Youth Cyber Defense Competition.

AFA US CyberPatriot is the National Youth Cyber Education Program created by the Air Force Association to inspire K-12 students toward careers in cybersecurity or other science, technology, engineering, and mathematics disciplines critical to our nation's future.

The CyberPatriot's National Youth Cyber Defense Competition is the nation's largest cyber defense competition that puts high school and middle school students in charge of securing virtual networks.

The 2d TSB Cyber Security Division introduced the Air Force Association United States CyberPatriot program to Wiesbaden High School in the winter of 2019. Twenty-two students signed up for the challenge, with 12 joining two, six-member teams: CyberAvengers and CyberDefenders.

The CyberAvengers won 1st Place, Gold Tier, At-Large Open Division in the State Round. The CyberAvengers' were the Best Gold Tier team outside the United States and US territories. The CyberDefenders won 2nd Place, Gold Tier, At-Large Open Division in the State Round.

During the six-hour per round competition window, team members must secure:
• Windows and Linux operating systems
• Find and eradicate malware
• Close suspicious ports on the firewall
• Trace packets using CISCO Packet Tracer to answer forensic questions

Additionally, the teams take a CISCO networking quiz, where the questions rival senior network technician certification questions.

Members of the Wiesbaden High School CyberPatriot program pose for a group picture during the AFA US CyberPatriot Challenge.
Photo by Candy Knight

Regimental CWO reflects on tour

CW5 Garth Hahn
Regimental Chief Warrant Officer

How time flies! These last three years have moved quickly, and our Signal Corps kept up with all the Army has thrown at it. When I replaced CW5 Deshawn Bell as the Regimental Chief Warrant Officer (RCWO) in 2018, the Army was in the middle of reviewing the Large Scale Combat Operations (LSCO) capability gaps, and refining the Multi-Domain (MD) Operations concepts. These initiatives kicked off a tremendous effort to adapt our counter-insurgency (COIN) focused Army for the future MD/LSCO fight. This future fight is expected to be fast and mobile, and supported by technologies like cloud, data science and machine learning(ML)/artificial intelligence(AI). Not having a recent background in TRADOC, I didn't realize how wide-ranging and deeply engaging this effort would be here at the Cyber Center of Excellence (CCOE), along with the other roles I would play as the RCWO in supporting the Signal warrant officer cohort's efforts to adapt to these new concepts. Fortunately, I had a great team here at the Signal School and across the Army to help me understand the direction we needed to go as a cohort.

The Signal Corps' effort in preparing the Regiment for MD/LSCO started with Capability Gap 15, and continues today as we modify curriculum in our schools and prepare our communicators for inclusion of emerging technologies in future equipment fielding. The future battlefield will host a flood of data that will flow from the growing number of sensors to our mission command systems to inform our Common Operational Picture (COP) and enable artificial intelligence support to Commander decision-making. This vision of the future fight is driving changes from new Signal organizations to support Cyberspace requirements, new doctrine, MOS convergence and exciting changes to our warrant officer cohort.

I have been fortunate to be teamed with amazing Signal leaders like Brig. Gen. Eubank, Command Sgt. Maj. Knott, and now with Col. Batson and Command Sgt. Maj. Lawshea, teammates dedicated to the betterment of our Regiment and passionate in their responsibilities and the success of every Signal Soldier in the Army. We spoke with Signal leaders across the Army on the need for every Signal Soldier to be a leader, teammate and communicator to enable our Army to meet the tough goals laid out for the MD/LSCO Army of 2028 and 2035. It has been an honor to serve with these great communicators.

While my tenure as the RCWO is ending, I am handing off these responsibilities to CW5 Chris Westbrook. CW5 Westbrook is coming to the Signal School from the

CW5 Garth R. Hahn
Regimental CWO

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Network-CFT. He is bringing a deep knowledge of both current formations across the Army and the future capabilities that are being fielded, and will be a great resource for the Signal Corps.

I thank every one of the communicators in the Army, across every cohort for your own dedication to our craft. We are not often appreciated, but the fact is that the Cyberspace Domain does not exist without the Signal Corps. I know our branch is ready for the future, because we have been the innovators of the Army for 162 years, and we are ready to meet the Army's future.

CW5 Garth Hahn gives a presentation on Signal Warrant Officer recruiting. Courtesy photo

Soldier feedback fuels logistics network modernization requirements

Amy Walker
PM Tactical Network- PEO C3T public affairs

As part of the Army's two-year interval network capability set acquisition process, the service is conducting early lab-based experimentation and Soldier assessments to inform capability and design requirements needed to modernize its legacy logistics network, which has been operating since 2004.

"Having a network that is able to pass information in a timely manner across all domains, even if those domains are contested, is hugely important, specifically in logistics," said Brig. Gen. Ronald Ragin, commander for the 13th Expeditionary Sustainment Command. "Logistics is intertwined with our ability to build lethality; without it, nothing moves; you can't fire a tank if you don't have the ammunition."

To support logistics network modernization, Project Manager Tactical Network, at Program Executive Office for Command, Control, Communications-Tactical (PEO C3T), in coordination with the Network Cross Functional Team (NCF-T) and other Army stakeholders, conducted a three-week Soldier touch point assessment, supported by Soldiers from the 1st Calvary Division and 13th Expeditionary Sustainment Command, in March and early April 2021, at Fort Hood, Texas. During the event Soldiers were trained to setup, operate, and troubleshoot a variety of commercial technologies, including expeditionary ground satellite terminals for global voice, video and data transport, and high-capacity line-of-sight coupled with 4G LTE and wireless capabilities for local network transport. The Soldiers then provided feedback on their experiences with the equipment which will be used to guide future acquisition decisions.

"We are fundamentally transforming how we acquire capability for our Army modernization efforts, and it starts with, and finishes with, a Soldier-centric design," said Brig, Gen. Robert Collins, program executive officer for C3T. "The Soldier touch point is allowing actual users to come out here and provide their input on various configurations of capability to see what works well and what doesn't. This event enables us to affect development early in the process, starting with the requirements design, and also to provide early feedback to industry to help them deliver better potential solutions in the future."

To more rapidly advance logistics network modernization, the Army is implementing Development, Security, Operations (DevSecOps), a term normally used in software development,

Soldiers from the 2nd Brigade Combat Team, 3rd Infantry Division, set up a Legacy Combat Service Support (CSS) Very Small Aperture Terminal (VSAT), during the Tactical Enterprise Logistics Suite Gunnery, in preparation for the Defender 2020 exercise (which was eventually cut short due to COVID-19 travel restrictions),
Photo by Maj. Kyle Hurst

however, Collins believes the concept also applies to hardware.

"DevSecOps brings together the developer, the user, and the requirements community, early in the process, so instead of having to do all those processes in serial, we do them all parallel, and it dramatically compresses the time in which we can deliver new kit," Collins said.

The main goal of the Soldier touch point was to inform the salient characteristics for the modernized logistics network material solution, which will be known as Sustainment Tactical Network (STN). These characteristics included set up and teardown times, ease of use for a general purpose user, ease of transport, reliability, resiliency, scalability, bandwidth and distance.

The Soldier touch point also incorporated other evolving sustainment technologies and processes such as Prognosis and Predictive Maintenance/Logistics (PPMxL), which automates the collection and analysis of maintenance and logistics data, and Medic Communications for Combat Casualty Care (MC4) emerging capabilities, including tele-health on the battlefield.

The Soldier feedback will help inform near-term Army requirements and future acquisition decisions for the final STN solution.

The Army plans to release a request for proposal to industry in fiscal year (FY) 2022 as part of continued market research to leverage innovative solutions that could best meet STN requirements in an affordable way.

Last summer, PM Tactical Network delivered bridge enhancements across the Army's fleet of legacy logistics systems to make the current CSS network more resilient until the final STN solution can be fully fielded.

On the current timeline, following future acquisition decisions, the service plans to begin fielding STN capability to units in FY23, as part of Capability Set (CS) 23, the second installment in the Army's iterative two-year network modernization capability set acquisition and fielding process. CS23 builds upon CS21 advances in expeditionary capabilities and intuitiveness, to increase network capacity, resiliency, and convergence.

"To meet those CS23 goals, we are converging the independent logistics network onto the Army's robust unified tactical network to gain that capacity and resiliency that we need to enable future multi-domain operations," said Lt. Col. Natashia Coleman, product lead for Unified Network Capabilities and Integration (PdL UNCI), assigned to Project Manager Tactical Network, which managed and led the STN Soldier Touch Point.

The legacy logistics network, known as the Combat Service Support (CSS) network, runs over a commercial

As part of continuing market research, experimentation and assessments to inform capability and design requirements for the modernization of the Army's logistics network, Product Manager Unified Network Capabilities and Integration (PdL UNCI), at Project Manager Tactical Network, in coordination with the Network Cross Functional Team and other Army Stakeholders, completed the Sustainment Tactical Network (STN) Soldier Touch Point in April 2021, supported by Soldiers assigned to the 1st Calvary Division and 13th Expeditionary Sustainment Command, at Fort Hood, Texas.
Graphic photos by Megan Newsome and Amy Walker

satellite network, completely separate from the Army's tactical network design. The service is now working to converge the legacy logistics network, as well as legacy medical and intelligence networks, onto its unified tactical network; an effort known as Transport Convergence.

As part of that convergence, the STN ground satellite terminal solution will be integrated with new configurations to enable data exchange over the Army's Regional Hub Nodes and the Global Agile Integrated Transport (GAIT) network design for worldwide data transport. GAIT creates a worldwide network mesh that enables secure high-capacity data exchange, mission command and network operations between dispersed units and home station.

The eventual modernized and converged STN network will include new baseband, local transport and satellite antenna hardware solutions.

Commercial Very Small Aperture Terminals (VSATs) will provide the tactical network transport needed to enable global data exchange for the Army's logistics information systems and applications, such as Enterprise Resource Planning (ERP), Global Combat Support System-Army (GCSS-Army), Integrated Personnel and Pay System-Army (IPPS-A), Medical Communication for Combat Casualty Care (MC4) and General Fund Enterprise Business Systems (GFEBS).

STN could also potentially include line-of-sight transport and 4G LTE secure wireless to support these systems across a localized logistics support location.

The final STN capability package may not be a one-size-fits-all solution set that contains each satellite, line-of-sight and 4G/LTE wireless element; instead, the Army may choose to scale and tailor solution sets for units according to mission sets, to more affordably meet the needs of different user groups.

To deliver network capability that best meets the needs of the logistics community, PEO C3T, in conjunction with the NCF-T, and numerous Army logistics stakeholders and industry partners, has also been conducting lab-based experimentation at the integration facilities at Aberdeen Proving Ground, Maryland, and Fort Huachuca, Arizona. Additionally, to further support STN market research while simultaneously satisfying a current U.S. Army Europe operational needs statement (ONS), PdL UNCI procured a limited number of VSAT satellite terminals, local transport solutions, and associated kit from industry partners to satisfy the ONS, assess requirements and inform the future network design.

Brig. Gen. Robert Collins, program executive officer for Command, Control, Communications-Tactical (PEO C3T), discusses some of the industry and program of record satellite and line-of-sight network equipment seen here, which was used during the Sustainment Tactical Network (STN) Soldier touch point assessment at Fort Hood, Texas. For three weeks, Product Lead Unified Network Capabilities and Integration (PdL UNCI), Project Manager Tactical Network, training and engineer teams conducted the STN evaluation and assessment with Soldiers assigned to the 1st Calvary Division and 13th Expeditionary Sustainment Command, at Fort Hood, Texas, to help inform requirements for the modernization of the Army's legacy logistics network.
Photo by Amy Walker

Signal Corps Code Talkers on D-Day

Steven J. Rauch
Signal Branch Historian

The Allied invasion of Normandy stands as one of the most famous military operations in history for its magnitude, complexity, individual daring and decisive leadership. Over 2,700 ships – from battleships to landing craft – carried, escorted and landed over 130,000 troops on five beaches along fifty miles of Normandy coast. Overhead, Allied aircraft controlled the skies and over 1,000 transports dropped paratroopers to secure the flanks and beach exits of the assault area. Success on the beaches was not guaranteed and reflected years of planning, organizing and training for those Army units that executed the assault. The US Army's 4th Infantry Division, the "Ivy Division" was selected to land at UTAH Beach on June 6, 1944. The 4th ID was activated at Fort Benning, GA in June 1940 as the 4th Motorized Division and designed to be fully self-mobile with transportation capability for over 15,000 men, which meant an additional 2,300 vehicles that a regular infantry division did not have.

The 4th Signal Company was tasked with integrating, fielding, and training the latest communications equipment for the division, such as the portable squad-level SCR 300 "walkie-talkie." In addition, the unit had over 200 motor vehicles, including armored half-tracks; 1-1/2 ton 4x4 line construction trucks and command reconnaissance cars. The company also possessed a unique capability that no other Army signal unit could claim; the assignment of seventeen Comanche Indian "Code Talkers," whose everyday language was suitable for passing messages in a code that could not be broken by the enemy.

The idea of employing Native American's whose unique language could serve as a code was not new, but it had never been systematized or organized in any way. Interestingly, the Army initiated this concept well before the US entered WWII. The Signal Corps began recruiting Comanche's between December 1940 and January 1941 in Oklahoma specifically for communications duties. The pre-WWII population figures showed there were 2,332 members of the tribe, of whom 1,136 were men but not all were eligible for military service. The Signal Corps wanted 30 men but recruited only 21, and

4th Signal Company motor park, Camp Gordon GA 1941 showing line construction trucks, half-tracks and command reconnaissance cars.
Photo from Maj. Gen. Hugh F. Foster, Jr. Collection, Signal Corps History Office

from those, only 17 men enlisted and were trained as signalmen to be assigned to the 4th ID. It should be noted, that the Signal Corps effort to enact a code-talking program preceded that of the US Marine Corps by 16 months, since the Marines did not begin their program until after Pearl Harbor. In addition, the Marines were a much smaller force than the army would become (only six divisions at peak strength) and drew their code-talkers from a larger population base of 25,000 Navajo, from which they eventually recruited 420 men.

Comanche Code-Talkers.
Photo from Signal Corps History Office

The Comanche men became Signal soldiers trained on emplacing communications equipment as well as using unique Comanche words for military terms. In August 1941, 2nd Lt. Hugh F. Foster, Jr., was assigned to the 4th Signal Company and was ordered to help the men come up with a standardized code. There were no Comanche words for many military terms so Foster developed a vocabulary list of about 250 basic terms. The code-talkers met as a group to jointly agree to the words in the Comanche tongue for each of the military terms. Only these 17 men would know what the words meant so no other Comanche soldiers would even understand the code.

According to Charles Chibitty, "We talked Indian and sent messages when need be. It was quicker to use telephones and radios to send messages because Morse code had to be decoded and the Germans could decode them. We used telephones and radios to talk Indian then

Code-Talker Private Wellington Mihecoby with a BD-72 12-line manual telephone switchboard during the Carolina Maneuvers 1941.
Photo from Maj. Gen. Hugh F. Foster, Jr. Collection, Signal Corps History Office

wrote it in English and gave it to the commanding officer."

Because the Comanche language did not contain words for many military terms, the code talkers used creative substitutions, such as "turtle" for tank; "sewing machine" for machine gun; and "pregnant bird" for a bomber. The men had plenty of time to hone their skills, both in language and Signal operations in extensive training events, including the Carolina Maneuvers in late 1941. By 1944, the men of the 4th Signal Company had almost three and a half years of training exercises before heading to Europe and the war.

2nd Lieut. Hugh Foster in a Wire Platoon Jeep during the Carolina Maneuvers 1941.
Photo from MG Hugh F. Foster, Jr. Collection, Signal Corps History Office

As the 4th ID prepared for its first combat operation, the assault on UTAH Beach, the code talkers were distributed to where they could best operate as Signal soldiers and employ their language. Two code talkers were assigned to each of the divisions' three infantry regiments and the division artillery. Most of the men at this echelon were either in the radio or wire construction teams. As members of the regiments, they performed all types of communications duties from stringing wire, switchboard operator, teletype operator and even motor messenger. The remaining code talkers were usually at the division signal center and were rotated to units as the situation warranted. Most of the men were involved in handling messages between the division and regimental headquarters, but on occasion, they found themselves working at the battalion level.

They could send coded messages from the front line to division headquarters, where other tribal members decoded the messages.

On June 6, 1944, four companies of the 8th Infantry Regiment stormed the German defenses at UTAH beach. However, they landed 2,000 yards south of their planned objective but fortunately in an area that was more lightly defended by the enemy than the original beach. The commander of the assault forces was Brig. Gen. Theodore Roosevelt, Jr., the 56-year-old assistant division commander, who landed in the first wave and was accompanied by code-talker Larry Saupitty who served as his driver, radio-operator and orderly. Roosevelt sent the first message of the battle to division headquarter through Saupitty, who used Comanche words to say, "We made a good landing. We landed at the wrong place."
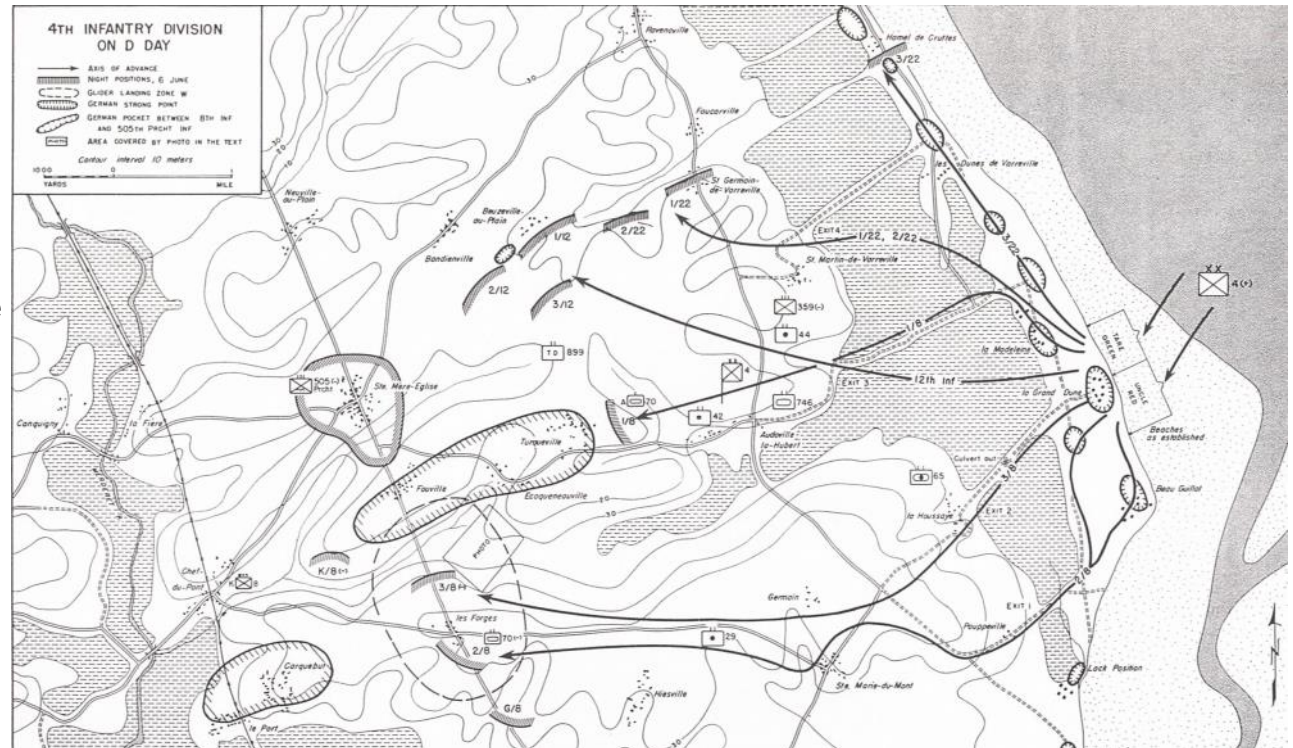
4th ID landing location on UTAH beach June 6, 1944.
Photo from US Army Center of Military History

Brig. Gen. Theodore Roosevelt, Jr. He led the 4th ID assault at UTAH beach and was posthumously awarded the Medal of Honor. He died of a heart attack in France about a month after D-Day.
Photo from Signal Corps History Office

Roosevelt decided to exploit the opportunity and ordered the following landing craft with the reinforcements, equipment, and supplies to head for the new beach and thereby capitalize on the situation. According to Saupitty, Roosevelt said, "This is as good a place as any to start the war. We'll start right here." Consequently, the 4th Division poured ashore in short time and quickly moved armor and engineer units into the battle. Saupitty had an exciting day with Roosevelt who moved from one location to another to rally the men and personally lead them against the enemy for which he would later be awarded the Medal of Honor. Another code-talker, Haddon Codynah recalled, "We was just glad to get off that water, to get on the land, you know. From there the only thing we thought about was what we had to do, what we was trained for, to find our Regimental Headquarters, to find them and then provide communications back. Wherever they went, we had to stay with them." Within 15 hours, the entire division had landed on UTAH beach, secured five forts and cleared a two-mile stretch of the Cherbourg peninsula. The next day the 4th ID broke through enemy defenses and linked up with elements of the 82nd Airborne Division who had landed behind enemy lines the day before.

During expansion of the beachhead, the men of the 4th Signal Company began to rapidly establish communications networks for the division. Looking back on the day, many men, including the code-talkers were not sure the landing was real or just another exercise. Forrest Kassanavoid recalled thinking, "We really didn't give much thought to it. When the actual invasion started, I thought it was

just another dry run."

Roderick Red Elk also thought it was another, "dry run. Maybe that's the way the Army works – they keep you confused and you don't know the real thing from the simulated thing." Thinking the attack was an elaborately staged exercise, Red Elk volunteered to climb a tree to install a telephone wire. He said, "I was still under the opinion they were making it look realistic – I thought they were setting the charges off pretty close. I said, 'Give me that wire, I'll go tie it in.' So I put the climbers on and shimmy up that tree and tied it. While I was up there I looked at the sand dunes of the beach and I saw five or six Germans holding their hands over their heads and one GI bringing them back. That's when I realized that this must be the real thing."

After the allies expanded their enclave in the Normandy area in June, they eventually breakout into France in late July. The 4th ID would be part of the action reaching Paris in August and then the Siegfried Line at the German border. In late fall 1944 and early 1945, the 4th ID was part of the vicious fighting that occurred in the heavily wooded Huertgen Forest and later the Battle of the Bulge. Through it all the Comanche code-talkers, along with the other signal soldiers of the 4th Signal Company continued their mission to provide reliable and continuous communications to their commanders and thus contributed significantly to the ultimate Allied victory in Europe.

In 2008, passage of the Code Talkers Recognition Act has permitted the US Treasury to issue special Congressional Gold Medals to honor each Native American tribe that had men serve as code-talkers in WWI and WWII. In 2013, the Congressional Gold Medal was awarded to the Comanche Nation Tribal Code Talkers at the US Capitol Building. The design features the Comanche Code and Spirit Talker Monument on the front, and the Comanche nation logo and 4th ID patch on the reverse along with the phrase in their language that translates as, "soldiers talking on phones made of metal."

Image of Gold Medal honoring Comanche Code-Talkers issued by the US Mint in 2013.
Image from US Mint

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